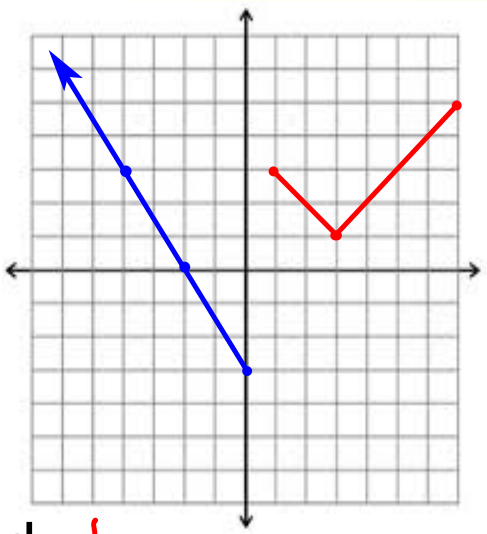


Alg. 2 Warm Up # 8-3

Short Quiz first

Write an equation for each graph, state the domain and range:

1.



red:

$$|x-3|+1; 1 \leq x \leq 7$$

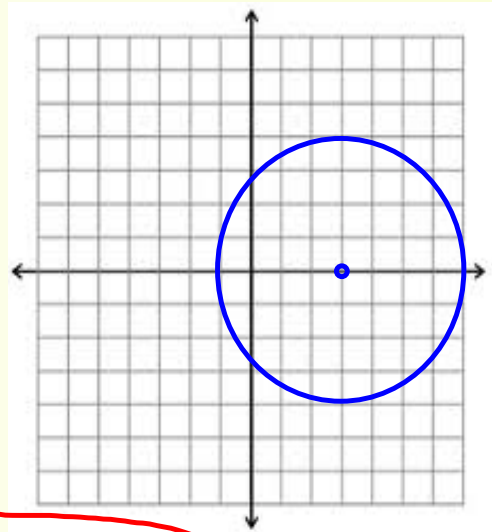
blue:

$$-\frac{3}{2}x-3; x \leq 0$$

$$D: x \leq 0 \text{ and } 1 \leq x \leq 7$$

$$R: y \geq -3$$

2.



$$C(3, 0)$$

$$r = 4$$

$$(x-3)^2 + y^2 = 16$$

p. 108

Even and Odd Functions

When a function $f(-x) = f(x)$, the function f is called an **even function**. For example, for the function $f(x) = x^2$:

$$f(-x) = (-x)^2 = x^2 = f(x)$$

Thus, $f(x) = x^2$ is an even function.

When $f(-x) = -f(x)$, the function f is called an **odd function**. For example for the function $f(x) = x^3$:

$$f(-x) = (-x)^3 = -x^3 = -f(x).$$

Therefore, $f(x) = x^3$ is an odd function.

even

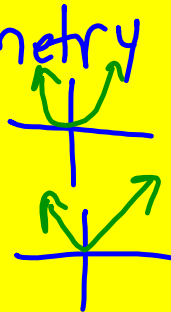
$$f(-x) = f(x)$$



y-axis symmetry

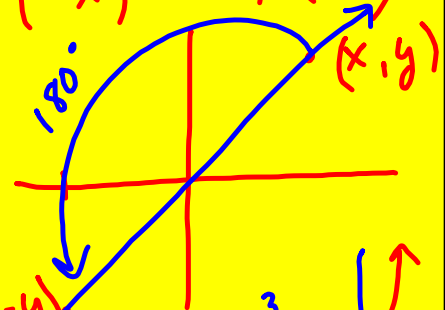
ex: $y = x^2$

$y = |x|$



odd

$$f(-x) = -f(x)$$



ex: $y = x^3$

ex: $y = \frac{1}{x}$



HW Questions:

CL 2-176. Write an equation for each of the following sequences.

a. $10, 7, 4, \dots$

b. $-2, -8, -32, \dots$

CL 2-177. For each of the equations below, complete the following:

- Find the x - and y -intercepts.
- Find the vertex.
- Sketch a graph of each parabola on its own set of axes.
- Write the equation in graphing form.

a. $y = x^2 + 8x + 12$

c. $y = x^2 - 6x - 9$

$$0 = x^2 - 6x + \frac{9}{2} - 9 - 9$$

$$0 = (x-3)^2 - 18$$

$$\pm \sqrt{18} = \sqrt{(x-3)^2}$$

$$x-3 = \pm \sqrt{9 \cdot 2}$$

$$x = 3 \pm 3\sqrt{2}$$

$$\left. \begin{array}{l} (3+3\sqrt{2}, 0) \\ (3-3\sqrt{2}, 0) \end{array} \right\} x\text{-int}$$

$$(0, -9) \quad y\text{-int.}$$

$$(3, -18) \text{ vertex}$$

b. $y = (x-4)(x+2)$

d. $y = x^2 + 5x + 1$ $\nearrow y\text{-int } (0, 1)$

$$0 = x^2 + 5x + 1$$

$$x = \frac{-5 \pm \sqrt{25 - 4(1)(1)}}{2}$$

$$x = \frac{-5 \pm \sqrt{21}}{2}$$

$$x\text{-int: } \left(\frac{-5 + \sqrt{21}}{2}, 0 \right) \left(\frac{-5 - \sqrt{21}}{2}, 0 \right)$$

$$\text{vertex: } y = x^2 + 5x + \frac{25}{4} + 1 - \frac{25}{4}$$

$$y = \left(x + \frac{5}{2} \right)^2 - \frac{21}{4}$$

$$\left(-\frac{5}{2}, -\frac{21}{4} \right)$$

CL 2-178. Factor each of the following expressions.

a. $2x^2 + 7x - 4$

b. $8x^2 + 24x + 10$

CL 2-179. Dinner at David's costs \$8.95 today and has been increasing an average of 7% per year.

Let t = time in yrs.

- a. What will it cost in 10 years? b. What did it cost 10 years ago?

$$y = 8.95(1.07)^t$$

↑
when $t=0$

↓
 $t = -10$

CL 2-180. If $g(x) = (x+1)^2$, complete each part below.

a. $g(5)$

b. $g(2m+4)$

c. x if $g(x) = 9$

\uparrow
input \searrow

$$g(2m+4) = (2m+4+1)^2$$
$$g(2m+4) = (2m+5)(2m+5)$$
$$g(2m+4) = 4m^2 + 20m + 25$$

CL 2-181. Solve each equation for y .

a. $4 - 2(x + y) = 9$

b. $x = 2(y - 1)^2 + 2$

$$\frac{x-2}{2} = \frac{2(y-1)^2}{2}$$

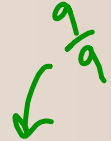
$$\sqrt{\frac{x-2}{2}} = \sqrt{(y-1)^2}$$

$$\pm \sqrt{\frac{x-2}{2}} = y - 1$$

$$\frac{1 \pm \sqrt{\frac{x-2}{2}}}{+1} = y$$

Tan Worksheet:

$$3c \quad y = x^2 - \frac{2}{3}x + 1$$

$$y = \left(x^2 - \frac{2}{3}x + \frac{1}{9} \right) + \left| -\frac{1}{9} \right|$$


$$\left(\frac{1}{2} \cdot \frac{-2}{3} = -\frac{1}{3} \right) y = \left(x - \frac{1}{3} \right)^2 + \frac{8}{9}$$

$$V \left(\frac{1}{3}, \frac{8}{9} \right)$$

Group Event: No grapher.

HW: Ch. 2 Review WS #2
(Purple)

Chapter 2 Test
tomorrow.